BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

In the Matter of	)	
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Procedures to Govern the Use of Satellite Earth Stations on Board Vessels in 5925-6425 MHz/3700-4200 MHz Bands and 14.0-14.5 GHz/11.7-12.2 GHz Bands	)	IB Docket No. 02-10

To: The Commission

REPLY COMMENTS OF MARITIME TELECOMMUNICATIONS NETWORK, INC.

MARITIME TELECOMMUNICATIONS NETWORK, INC.

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Maritime Telecommunications Network, Inc. ("MTN"), by its attorneys and pursuant to Sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. §§ 1.415, 1.419, hereby replies to the comments filed in response to the Federal Communications Commission's ("Commission") Notice of Proposed Rule Making ("NPRM") in the above-captioned proceeding.[1]

I. Introduction and Summary

From the outset of this proceeding, MTN has advanced a core set of regulatory principles that, if implemented, would accommodate the use of satellite earth stations on board vessels ("ESVs") in fixed-satellite service ("FSS") networks while protecting the legitimate interests of the terrestrial fixed service ("FS") at C-band. These principles were formed by the unassailable fact that

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[1] *Procedures to Govern the Use of Satellite Earth Stations on Board Vessels in the 5925-6425 MHz/3700-4200 MHz Bands and 14.0-14.5 GHz/11.7-12.2 GHz Bands*, Notice of Proposed Rule Making, 18 FCC Rcd 25248 (2003).

co-primary C-band ESV/FS operations are desirable (particularly in light of the critical broadband communications services that ESVs alone can provide), feasible, and internationally sanctioned. MTN's approach is also spectrum efficient as it puts to use spectrum over the high seas that would otherwise lie fallow.

The key principle advanced by MTN is that ESV operations should be coordinated using the existing methods and procedures that have been developed for this purpose after years of domestic and international study. Protection of the FS is assured by the requirement for prior coordination using the procedures set out in the international recommendations on ESV operations adopted by the International Telecommunication Union ("ITU") at the 2003 World Radiocommunication Assembly and the operational limitations contained in the Resolution 902 adopted at the World Radiocommunication Conference ("WRC-03").[2] Resolution 902 clearly provides that ESVs operating in either C- or Ku-band would communicate with satellites as stations in the FSS under the primary allocation for such stations. This decision provides for meaningful co-frequency sharing between ESVs and terrestrial stations at C-band. Moreover, as MTN has repeatedly emphasized, its operational experience clearly demonstrates that coordination results in interference-free ESV C-band operations.[3]

Significantly, the parties filing comments in response to the NPRM, despite their divergent interests, overwhelmingly endorse the concept that coordination is the best means of keeping the potential for interference from ESVs to the FS unrealized. Even the Fixed Wireless Communications Council ("FWCC"), a coalition of entities and individuals ostensibly representing

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[2] ITU-R Resolution 902 (WRC-03).

[3] Comments of Maritime Telecommunications Network, Inc., IB Docket No. 02-10, at 18 (filed Feb. 23, 2004) ("MTN Comments").

the FS industry, agrees that C-band ESVs should be licensed on a frequency-coordinated basis.[4] Given the near unanimity of opinion that coordination works, the Commission should reject its proposed Non-Coordination Approach in favor of the modified Coordination Approach advocated by MTN, which would provide ESVs with the same co-primary protections that are accorded to other coordinated entities.

As to how to effect coordination and under what conditions, the commenters lend considerable support to the recommendations that MTN offered in its own comments. MTN generally favors adoption of a regulatory regime that fully protects (without overprotecting) the FS while not unduly burdening or restricting ESV operations. This sensible and appropriately balanced approach warrants adoption because it recognizes that even though the potential for interference to the FS from ESVs theoretically may exist, the likelihood of such interference actually occurring is *de minimis* – and can be reduced to zero with appropriate coordination. Indeed, because no party to this proceeding has ever offered any documented evidence of ESV interference to the FS, despite the Commission's express request for such evidence,[5] the Commission should reject outright the comments that support the call for the overly burdensome regulation of ESVs on the theoretical threat of ESV interference.

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[4] Comments of the Fixed Wireless Communications Coalition, IB Docket No. 02-10, at 11 (filed Feb. 23, 2004) ("FWCC Comments").

[5] *See* NPRM at ¶ 97. Telenor Satellite Services, Inc. ("Telenor") notes that, in its 13 years of operating an ESV network, it is aware of only one documented case of interference from an ESV to an FS licensee, but that this interference was due to an "anomalous hardware failure that was quickly resolved." Comments of Telenor Satellite Services, Inc., IB Docket No. 02-10, at 5 (filed Feb. 23, 2004) ("Telenor Comments"). This incident involved a vessel in the port of Stornaway in the Outer Hebrides, Scotland, as reported by MTN in its comments filed in response to the Notice of Inquiry ("NOI") in this proceeding. NOI Comments of Maritime Telecommunications Network, Inc., IB Docket No. 02-10, at 8 (filed May 10, 2002). Regular ESV operations simply do not interfere with the FS.

In short, the key challenge facing the Commission in this proceeding is how to establish rules, consistent with the U.S.-supported results of WRC-03, that permit the fair and reasonable use of ESVs in the C-band. As there is nothing in the record in this proceeding to recommend otherwise, the proper means to that end is the adoption of a regulatory approach consistent with the comments filed by MTN, as amplified herein.

II. The Comments Offer No Support For The Commission's Ku-Band Preference Or For Any Special Measures To Accommodate Entities That Use The Commercial C-Band FS Frequencies For Public Safety-Type Purposes.

Before discussing the specifics of ESV licensing at C-band, MTN addresses three threshold issues affecting C-band ESV licensing in general. First, MTN notes that every commenter addressing the issue either rejects the Commission's stated preference for ESV use of the Ku-band over the C-band or recognizes the essential nature of C-band operations.[6] These commenters echo MTN's position that the Commission's C-band bias toward Ku-band for ESVs belies the fact that the broad geographic coverage of C-band satellites makes its use necessary for global ESV operations, and the fact that the technical and operational limitations of Ku-band necessarily relegate those frequencies to serving as a complement to, and not a replacement for, C-band.[7] Broadband Maritime, Inc. ("Broadband Maritime"), for example, notes that it operates its ESVs on ocean-going vessels exclusively at C-band because "the Ku-band is not feasible for the types of operations" it

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[6] *See* Comments of Intelsat Global Service Corporation, IB Docket No. 02-10, at 5 (filed Feb. 23, 2004) ("Intelsat Comments"); Comments of Inmarsat Ventures Ltd, IB Docket No. 02-10, at 17-18 (filed Feb. 23, 2004) ("Inmarsat Comments"); Comments by Pinnacle Telecom Group, IB Docket No. 02-10, at 2 (filed Feb. 23, 2004) ("Pinnacle Comments"); Comments of SES Americom, Inc., IB Docket No. 02-10, at 3 (filed Feb. 23, 2004) ("SES Americom Comments"); Comments of Broadband Maritime, Inc., IB Docket No. 02-10, at 2 ("Broadband Maritime Comments"); Comments of Stratos Offshore Services Company, IB Docket No. 02-10, at 9 (filed Feb. 23, 2004) ("Stratos Comments"); Telenor Comments at 3.

[7] *See* MTN Comments at 7-8.

provides.[8] Stratos Offshore Services Company ("Stratos") similarly states that "the Commission should not preclude ESV operations in the C-band because the band affords unique operational advantages that the Ku-band generally cannot offer."[9] Stratos and others also support MTN's position that dual-band operations (i.e., ESV use of the C-band on the high seas and Ku-band closer to port) are not feasible due to the operational complexity and expense involved.[10] The Commission must heed the consensus opposition to any preference for ESV operations at Ku-band at the expense of C-band.

Second, C-band ESV operations are a new technology that MTN and others have shown to be uniquely in the public interest. As MTN pointed out in its comments, Section 7 of the Communications Act of 1934, as amended (the "Communications Act"), requires that opponents of new services demonstrate that the new service is not in the public interest.[11] Not once in the course of this proceeding, including following the NOI, have any comments been filed to support the contention that ESVs are not in the public interest. To the contrary, many commenters specifically cite the numerous public interest benefits that ESVs provide.[12]

Finally, MTN notes that the comments offer no support for the Commission's proffered justification for restricting ESV operations due to the use of the commercial FS frequencies at C-band by public safety entities, railroads, pipelines, or electric utilities. While the comments of FWCC, the Association of Public-Safety Communications Officials-International, Inc. ("APCO"),

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8 Broadband Maritime Comments at 2.

9 Stratos Comments at 9.

10 *See, e.g.*, Stratos Comments at 10; Telenor Comments at n.11.

11 MTN Comments at 3.

12 *See, e.g.,* Stratos Comments at 2; Telenor Comments at 2; Broadband Maritime Comments at 2.

and King County, Washington ("King County") stress the critical importance of public safety entities – a fact that MTN does not dispute – none offers even *one* substantiated example of operations of such entities that were in fact compromised by commercial ESVs or other co-primary FSS users at C-band.[13] Nor do they explain why these entities should be granted, consistent with the Commission's rules, any special considerations for their "public safety" use of purely commercial frequencies. The spectrum in question is *not* a public safety band. MTN reiterates its commitment to protect all FS operators – public safety or otherwise – in bands shared with ESVs, but opposes the attempt to provide public safety entities with the special consideration that FWCC, APCO and King County seek.

III. Coordination Is The Consensus Choice For Protecting FS Stations From The Potential For ESV Interference.

A. The Commission Should Reject The Non-Coordination Approach And Non-Interference Basis Requirement.

As noted above, despite the diverse interests at stake, the various ESV operators, FS operators, satellite operators, and frequency coordinators who filed comments in response to the NPRM overwhelmingly support coordination as the best means of preventing ESV interference to FS stations at C-band.[14] Of particular note, FWCC unequivocally states that the Non-Coordination Approach is "not acceptable . . . even with the proposed conditions set out in the [NPRM]," and that "[i]f the Commission allows ESV operations in C-band, then it *must* require prior frequency

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[13] FWCC Comments at 8; Comments of APCO, IB Docket No. 02-10, at 1 (filed Feb. 23, 2004); Letter to Marlene H. Dortch, Secretary, Federal Communications Commission, from Kevin Kearns, Director, Information and Telecommunications Services Division, King County, Washington (dated Feb. 23, 2004), IB Docket No. 02-10.

[14] *See, e.g.,* FWCC Comments at 10-11; Intelsat Comments at 4; Pinnacle Comments at 2; Comments of National Spectrum Managers Association, IB Docket No. 02-10, at 16 (filed Feb. 23, 2004) ("NSMA Comments"); Comments of PanAmSat Corporation, IB Docket No. 02-10, at 3 (filed Feb. 23, 2004) ("PanAmSat Comments").

coordination."[15] While MTN disagrees with FWCC's rationale for requiring coordination,[16] it likewise believes that the Commission should abandon the Non-Coordination Approach, and in lieu thereof adopt a modified Coordination Approach that does not contain the paradoxical non-interference basis ("NIB") requirement and which thus provides ESV operators with the regulatory protections enjoyed by other FSS licensees with coordinated operations.

MTN agrees with PanAmSat Corporation that "if coordination with terrestrial FS systems is successfully completed, there is no reason for relegating ESVs to secondary status."[17] MTN thus opposes those comments that favor requiring that ESVs operate NIB following coordination.[18] Stratos, for example, states that it "generally supports" the proposed Coordination Approach with the NIB requirement intact, but offers no explanation why a coordinated ESV operator would need to fully protect a co-primary FS operator.[19] Stratos' claim that ESV operators "would still take advantage of the Coordinated Approach to ESV licensing to obtain the additional regulatory certainty associated with a 15-year license term" is

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15 FWCC Comments at 10-11 (emphasis added). Indeed, FWCC includes an Appendix to its comments written by W.D. Rummler, which concludes that "ESV operations should only be licensed on a frequency-coordinated basis." FWCC Comments at iii. Mr. Rummler was the international chairperson of ITU-R Joint Working Party 4-9S, which promulgated recommendations concerning ESV operations and developed the technical basis for the ESV regulations that were adopted at WRC-03.

16 FWCC maintains that coordination is required because of the difficulties and burdens associated with identifying sources of ESV interference to the FS. *Id.* at 11. This position is unsupported by the facts. As MTN has previously explained, ESV-equipped vessels at fixed locations pose no more of an interference threat than any other fixed FSS station, and ESV-equipped vessels in motion travel through unvarying ship lanes in and out of the same port, thus making the identification of any mobile ESV source of interference a routine matter. MTN Comments at n.22. *See also* Pinnacle Comments at 3.

17 PanAmSat Comments at 2. *See also* Intelsat Comments at 6 ("[C]oordinated fixed locations or fixed routes for operation of ESVs should have the same status as coordinated earth stations.").

18 *See* Stratos Comments at 13; FWCC Comments at 8; SES Americom Comments at 4.

19 Stratos Comments at 13.

unconvincing, and underestimates the time and expense necessary to undergo coordination.[20] Requiring that ESVs operate on a non-interference basis only disadvantages ESVs without providing any offsetting benefit to the FS.

MTN also opposes those portions of the comments of Telenor and Broadband Maritime indicating their support for the Non-Coordination Approach.[21] Telenor's preference for the Non-Coordination Approach is particularly puzzling, as it contradicts the company's conclusion that the threat of ESV interference to FS systems is "greatly exaggerated."[22] Far from providing support for the Non-Coordination Approach, the overstated risk of ESV interference should prompt the Commission (and Telenor) to realize that requiring short, two-year license terms and operations on a non-interference basis are unnecessary and unduly restrictive. Broadband Maritime supports the Non-Coordination Approach because vessels equipped with its ESV equipment "do not generally frequent particular ports," and thus it would be "very costly and therefore not practical to coordinate frequency usage at each possible port in the United States."[23] MTN does not believe that Broadband Maritime fully appreciates the burdens it would have to endure to become licensed every two years, with no attendant regulatory benefits, only to operate in the exact same manner it can operate today with no license. Whatever else the Commission does in this proceeding, it clearly must not make the regulatory situation of ESVs *worse* than it is today.

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[20] *Id.* at 15. As MTN explained in its comments, requiring NIB operations as part of the Coordination Approach offers ESV operators no incentive to undergo the time and expense necessary to achieve coordination with FS stations if, following coordination, they must operate in a manner that fully protects those very same stations. MTN Comments at 15.

[21] Telenor Comments at 3; Broadband Maritime Comments at 3. Telenor and Broadband Maritime support exclusive application of the Non-Coordination Approach. MTN also opposes use of the Non-Coordination Approach in conjunction with the Coordination Approach. *See* Stratos Comments at 10; Inmarsat Comments at 18.

[22] Telenor Comments at 5.

[23] Broadband Maritime Comments at 3.

B. The Commission Should Require ESV Coordination Consistent With The Recommendations Of NSMA And Pinnacle, And Treat Coordinated ESVs Like Any Other Coordinated FSS Application.

MTN believes that ESVs at fixed locations (e.g., docks and oil exploration platforms) should be coordinated in the same manner as any other C-band earth station.[24] A number of commenters, including the two with the most fixed-service coordination expertise, agree.[25] The National Spectrum Managers Association ("NMSA") and Pinnacle Telecom Group ("Pinnacle") believe that the same well-established coordination procedures used for terrestrial fixed earth stations can be applied to ESVs at fixed locations as well.[26] In addition, MTN supports the comments of NSMA, Pinnacle and others recommending that "in motion" ESVs be coordinated using the recommendations adopted by ITU-R, including the Critical Contour Point methodology, which were developed with the full participation of the FS and FSS communities.[27]

Pinnacle also urges the Commission to adopt, as MTN proposed in its comments, only a short-term interference objective and no long-term interference objective.[28] In contrast, FWCC advocates adoption of a long-term objective based on a misguided concern regarding the theoretical

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[24] MTN Comments at 12.

[25] *See* NSMA Comments at 6; Pinnacle Comments at 3; Inmarsat Comments at 12; SES Americom Comments at 8; Stratos Comments at 23. SES Americom recommends that oil platforms which remain stationary for at least a six-month period should be treated as fixed earth stations. Stratos believes that stationary earth stations such as oil rigs and other fixed platforms at sea "clearly fall within the definition of an FSS earth station."

[26] NSMA Comments at 6; Pinnacle Comments at 3. In its comments, Pinnacle proposes that both fixed and "in motion" ESV operations be treated as temporary fixed and frequency coordinated every six months. Pinnacle Comments at 5. MTN applauds Pinnacle's creative attempt to craft a "middle-ground approach" acceptable to both the ESV and FS communities, but does not believe that twice-yearly coordinations are necessary to provide an interference-free environment for the FS.

[27] NMSA Comments at 8; Pinnacle Comments at 3; Stratos Comments at 15.

[28] Pinnacle Comments at 3-4 (noting that no reported case of harmful interference to microwave facilities has resulted in more than seven years of MTN operations using the –131 dBW/4kHz objective). In its comments, MTN expressed its willingness to accept the more conservative –145 dBW/4kHz objective. MTN Comments at 20.

risk of ESV interference that experience has proven to be unfounded.[29] MTN also notes, and concurs with, the support for a minimum-distance-from-shore of considerably less than 300 km,[30] as well as the opposition to any limitation on the amount of spectrum, specific sub-bands, or number of space stations an ESV may access.[31] On the former point, MTN specifically agrees with Intelsat and Stratos that a 100 km minimum-distance-from-shore figure is adequate to protect terrestrial FS stations.[32] On the latter point, while MTN can accept a flexible limitation to 72 MHz in each direction on up to two satellites from any particular location,[33] it remains unconvinced as to the objective "need" for such limitations.

Once fixed or "in motion" ESV transmissions are coordinated, MTN believes that there is no reason to treat them any differently than any other coordinated FSS application – a viewpoint shared by several commenters.[34] Given this support, MTN urges the Commission to authorize ESVs: on a blanket license basis following the procedures applicable to VSAT and CSAT networks;[35] with full 15-year license terms;[36] on a protected basis in the transmit mode in C-band (and in the transmit and

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29 FWCC Comments at 15.

30 *See, e.g.,* Telenor Comments at 5; Inmarsat Comments at 21; Intelsat Comments at 4; NMSA Comments at 11; Stratos Comments at 15.

31 *See, e.g.,* Inmarsat Comments at 20; Stratos Comments at 13.

32 MTN, however, does not agree with Stratos' proposal that this minimum distance be measured from the locations of offshore terrestrial stations, as there is no international precedent for such a step.

33 MTN Comments at 17.

34 Coordinated ESVs on vessels in port or moored would be protected from FS transmissions. MTN does not seek protection from the FS for in-motion ESVs in the downlink C-band spectrum.

35 *See, e.g.,* Broadband Maritime Comments at 5; PanAmSat Comments at 5; SES Americom Comments at 6.

36 *See., e.g,* Inmarsat Comments at 23; Stratos Comments at 15.

receive modes in Ku-band);[37] and without any automatic shutoff mechanism requirement.[38] In contrast, the Commission should reject outright the onerous ESV licensing restrictions at C-band proposed by FWCC, which are based on the faulty premise that the mobile nature of ESVs necessarily complicates interference detection and avoidance.[39] FWCC's proposals to require that ESVs be equipped with GPS finders, to limit coordination to bandwidth for which an ESV operator can demonstrate actual need, to limit license terms to two years, and to limit ESV operations to vessels of 5,000 gross tons or larger, are patently unnecessary given the routine manner in which "in motion" ESVs can be identified.[40]

IV. The E.I.R.P. Proposals Of Boeing And NRAO Applicable To Ku-Band ESV Operations Should Be Rejected.

MTN generally supports the Ku-band licensing of ESVs as proposed in the NPRM,[41] as do the other parties filing comments in this proceeding.[42] Accordingly, MTN replies to only a pair of anomalous comments that were made with respect to Ku-band operations. First, MTN recognizes that the off-axis e.i.r.p. limits advanced by The Boeing Company ("Boeing") are consistent with

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37 *See, e.g.,* PanAmSat Comments at 1.

38 *See, e.g.,* Inmarsat Comments at 22; Pinnacle Comments at 5.

39 FWCC Comments at 3.

40 *See supra* note 16. The Commission rejected an FWCC-proposed "actual need" limitation two years ago, and should not allow such a notion to be resurrected here. *See FWCC Request for Declaratory Ruling on Partial-Band Licensing of Earth Stations in the Fixed-Satellite Service That Share Terrestrial Spectrum*, Second Report and Order, 17 FCC Rcd 2002 (2002).

41 *See* MTN Comments at 23-30.

42 *See* Comments of The Boeing Company, IB Docket No. 02-10 (filed Feb. 23, 2004) ("Boeing Comments"); Comments of Tachyon Networks Incorporated, IB Docket No. 02-10, at 1 (filed Feb. 23, 2004); Comments of Schlumberger Omnes, Inc., IB Docket No. 02-10, at 1 (filed Feb. 19, 2004); Inmarsat Comments at 5; Intelsat Comments at 2; Stratos Comments at 3; PanAmSat Comments at 3.

those for routinely licensed Ku-band VSATs in the U.S.[43] However, these limits are not necessarily applicable to ESVs, as studies of the ITU-R have shown. The adequate protection of adjacent FSS systems would be assured if the Commission adopts instead MTN's recommendation to permit the routine processing of Ku-band ESV applicants that specify a minimum antenna diameter of 1.2 meters, with smaller antennas allowed upon demonstration that unacceptable interference will not be caused to any adjacent satellite operator. Protection of secondary commercial operations in the Ku-band is, of course, inappropriate for an application in a co-primary service.

The National Radio Astronomy Observatory ("NRAO") and Cornell University ("Cornell") devote their comments to issues addressing the protection of the Radio Astronomy Service ("RAS") in the 14.47-14.5 GHz band.[44] NRAO's claim that the e.i.r.p. and e.i.r.p. density limits contained in Resolution 902 are inadequate for the protection of the RAS should be dismissed.[45] These limits were adopted at WRC-03 after full debate, and with the endorsement of the U.S. Delegation (which included RAS interests). On the other hand, MTN does not oppose Cornell's request that the radio astronomy observatory in Arecibo, Puerto Rico be added to the list of RAS observation sites.[46] Indeed, as it made clear in its comments, MTN is willing to coordinate ESVs with the Interdepartment Radio Advisory Committee should its operations occur anywhere near any radio astronomy site, thereby mooting the concerns expressed by NRAO and Cornell.[47] For the record,

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[43] Boeing Comments at 20.

[44] Comments of the National Radio Astronomy Observatory, IB Docket No. 02-10 (filed Feb. 5 2004) ("NRAO Comments"); Comments of Cornell University, IB Docket No. 02-10 (filed Feb. 23, 2004) ("Cornell Comments").

[45] NRAO Comments at 2.

[46] Cornell Comments at 4.

[47] MTN Comments at 26. *See also* Inmarsat Comments at 10 (recommending coordination zones around each radio astronomy research station). MTN also recognizes its need to protect the space research Tracking and Data

however, MTN notes that the RAS, as a secondary service, is not entitled to the level of protection accorded primary users of the 14.47-14.5 GHz band under both the Commission's rules and the Radio Regulations of the ITU-R.[48] Moreover, the intermittent nature of radioastronomy observations must be taken into account in any event.

V. Communications To ESVs On Foreign-Flagged Vessels Should Be Permitted With Proper Network Controls In Place.

In its comments, MTN observed that Section 306 of the Communications Act does not necessarily preclude licensing of ESVs on board vessels of foreign registry, but rather provides the Commission with the right and obligation to control radio frequency emissions from earth stations on foreign ships that ply U.S. waters.[49] While the commenters offer a variety of interpretations of Section 306, they agree generally with MTN's position that communications with ESVs on foreign-flagged vessels should be permitted at the very least in situations where the hub licensee maintains control over the ESV network.[50]

VI. Conclusion

MTN urges the Commission not to ignore the collective wisdom of the ESV operators, FS operators, satellite operators and frequency coordinators whose comments recognize that the coordination of ESVs is the surest means of protecting against the potential for ESV interference to

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Relay Satellite System operating in the 14.0-14.2 GHz band, but notes that the two space research earth stations in use receive only in the 14.0-14.05 GHz band. *See* Boeing Comments at 13.

[48] ITU Radio Regulations (RR) 5.149.

[49] MTN Comments at 31.

[50] *See* Stratos Comments at 22; Inmarsat Comments at 24; Boeing Comments at 25. Drawing an analogy to the Commission's treatment of Big LEO roaming transceivers operations, Boeing specifically recommends that the Commission treat a foreign-flagged ESV as temporarily associated with a U.S. ESV licensee, during which time the U.S.-licensed ESV operator would assume responsibility for the ESV as if it were licensed to it. *Id.* MTN believes that Boeing's approach could be consistent with Section 306 of the Communications Act and is an appropriate regulatory approach to pursue given the global nature of ESV operations for both C- and Ku-band.

the FS. By adopting the Coordination Approach, as modified by MTN, as well as the other recommendations advanced by MTN in its comments and herein, the Commission will allow critical ESV services to continue in the FSS C-band in a manner that fully protects, without needlessly overprotecting, co-primary FS operations.

Respectfully submitted,

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